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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/587,751	07/28/2006	Yusaku Shimaoka	MTS-3579US	2701

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EXAMINER	
HOWARD, RYAN D	

ART UNIT	PAPER NUMBER
2851	

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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/587,751	SHIMAOKA ET AL.	
	Examiner	Art Unit	
	RYAN HOWARD	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 July 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *28 July 2006* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *7/28/2006, 10/24/2007*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-5, 7-11, and 13 rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda et al. (US 2003/0218794 A1) in view of Yoshinaga et al. (US Patent 6,961,038 B2).

Regarding claims 1, 7, and 13, Takeda teaches a light emission method in which light as a light source for imaging is emitted using a first light source of emitting red light, a second light source of emitting green light and a third light source emitting blue light (110R-B, figure 10), said method comprising: a first light emitting step of making said first light source emit light in a first light emission period (RT, figure 5a); a second light emitting step of making said second light source emit light in a second light emission period (GT, figure 5a), and a third light emitting step of making said third light source emit light in a third light emission period (BT, figure 5a), wherein at least one duration compared to another duration of said first, second, and third light emission period are respectively different (figure 5a). Takeda further teaches a light collecting system collecting light from said first, second and third light sources (310, figure 10); a light modulation element modulating light collected by said light collecting system (330, figure 10); and a projection lens of projecting modulated light by said light modulation element (150, figure 10).

Takeda does not teach a fourth light emitting step of making said first light source, said second light source, and said third light source, emit light at the same time in a fourth light emission period, in a period for display of one image.

Yoshinaga teaches a fourth light emitting step of making said first light source, said second light source, and said third light source, emit light at the same time in a fourth light emission period, in a period for display of one image (figure 3).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the light emission sequence of Takeda to include the fourth light emission period of Yoshinaga because the fourth light emission period of Yoshinaga eliminates color sequential artifacts in allowing more realistic motion to be projected (column 2 lines 9-24 and 63-67).

Regarding claims 2 and 8, Yoshinaga further teaches at least any one of the light intensity of said first light source in said first light emission period is different from that in said fourth light emission period; the light intensity of said second light source in said second light emission period is different from that in said fourth light emission period; and the light intensity of said third light source in said third light emission period is different from that in said fourth light emission period ($BL_{R\text{-}B}$, figure 3).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the light emission sequence of Takeda with the reduced intensity, simultaneous emission in the fourth period of Yoshinaga because the reduced intensity emission of Yoshinaga reduces the power consumption of the light source (column 10 lines 20-23).

Regarding claims 3 and 9, Yoshinaga further teaches the ratio of the light amount of said first light source in said first emission period, the light amount of said second light source in said second light emission period, and the light amount of said third light source in said third light emission period, and a ratio of the light amount of said first , second, and third light sources in said fourth light emission period are substantially the same (figure 3). Yoshinaga shows the ratio of the three periods is 100:100:100 and the ratio of light amounts in the fourth period is 50:50:50 which both correspond to 1:1:1.

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the light emission sequence of Takeda to include the fourth light emission period of Yoshinaga because the fourth light emission period of Yoshinaga eliminates color sequential artifacts in allowing more realistic motion to be projected (column 2 lines 9-24 and 63-67).

Regarding claims 4 and 10, Yoshinaga further teaches said first light emission period, said second light emission period, said third light emission period and said fourth light emission period are assigned for display of one image in a continuous or discontinuous manner (column 7 lines 58-65).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the light emission sequence of Takeda to include the fourth light emission period of Yoshinaga because the fourth light emission period of Yoshinaga eliminates color sequential artifacts in allowing more realistic motion to be projected (column 2 lines 9-24 and 63-67).

Regarding claims 5 and 11, Yoshinaga further teaches the first light emission period, the second light emission period, and the third light emission period are assigned for display of one image in a continuous or discontinuous manner (column 7 lines 58-65), and said fourth light emission period is assigned so as to be inserted in a period after one round of said first light emission period, said second light emission period, and said third light emission period (figure 3).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the light emission sequence of Takeda to include the fourth light emission period of Yoshinaga because the fourth light emission period of Yoshinaga eliminates color sequential artifacts in allowing more realistic motion to be projected (column 2 lines 9-24 and 63-67).

Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeda in view of Yoshinaga as applied to claims 4 and 10 above, and further in view of Shigeta (US 2002/0008712 A1).

3. Regarding claims 6 and 12, Takeda in view of Yoshinaga does not teach said fourth light emission period is divided into divided periods, and the divided periods are assigned for display of one image so as to be inserted between at least one pair of light emission periods of said first light emission period, said second light emission period and said third light emission period.

Shigeta teaches said fourth light emission period is divided into divided periods, and the divided periods are assigned for display of one image so as to be inserted

between at least one pair of light emission periods of said first light emission period, said second light emission period and said third light emission period (figure 12).

It would have been obvious to a person having ordinary skill in the art at the time the invention was made to modify the light emission sequence of Takeda in view of Yoshinaga to emit a combination of the three colors in between the emission of each color because the emission of a combination of the three colors in between the emission of each color avoids color mixture and variation in luminance and color on the surface of the modulator (paragraph 0101).

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Imade (US Patent 7,303,284 B2) teaches a projection apparatus with LED's as a light source. Roddy et al. (US 2004/0070736 A1) teaches a projector with multiple different color LEDs or OLEDs. Shivji (US 2005/0052376 A1) teaches four emission periods including one period for the emission of three different colors. Matsui (US Patent 7,052,138 B2) teaches adjusting the white balance of LEDs based on temperature fluctuations. Pate et al. (US Patent 7,391,475 B2) teaches a three color light generation scheme.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to RYAN HOWARD whose telephone number is (571)270-5358. The examiner can normally be reached on Monday-Friday 7:30-5:00, First Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571)272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/William C. Dowling/
Primary Examiner, Art Unit 2851

/Ryan Howard/
Examiner, Art Unit 2851
11/20/2008